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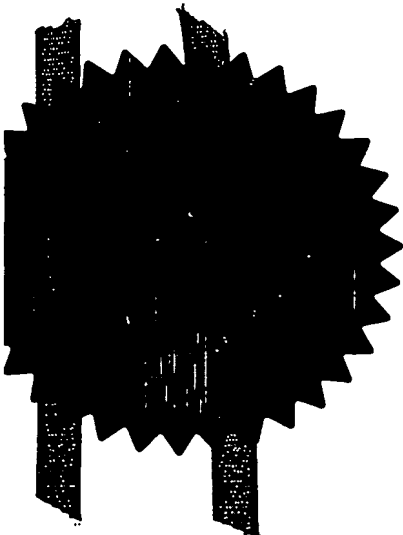
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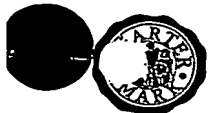
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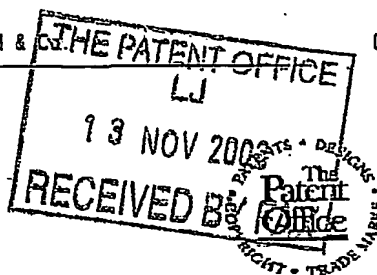
GB0326402.5

By virtue of a direction given under Section 30 of the Patents Act 1977, the application is proceeding in the name of:-

PITCHLINE LIMITED  
Incorporated in the United Kingdom  
24a FrancisStreet  
Lurgan  
Armagh  
BT66 6DN  
United Kingdom  
ADP No. 08883118001

## Patents Form 1/77

Patents Act 1977  
(Rule 16)



13NOV03 E851668-1 D02884  
P01/7700 0.00-0326402.5

## Request for grant of a patent

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The Patent Office

Cardiff Road  
Newport  
South Wales  
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## 1. Your reference

P35990-/CAM/MEA

## 2. Patent application number

(The Patent Office will fill in this part)

0326402.5

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Barry Douglas  
24a Francis Street  
Lurgan,  
Armagh

BT66 6DN

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

United Kingdom

## 4. Title of the invention

"Method of Marking Pitch Lines"

## 5. Name of your agent (if you have one)

Murgitroyd &amp; Company

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Scotland House  
165-169 Scotland Street  
Glasgow  
G5 8PL

Patents ADP number (if you know it)

1198015

## 6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number  
(if you know it)Date of filing  
(day / month / year)

## 7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing  
(day / month / year)

## 8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

No

- a) any applicant named in part 3 is not an inventor, or  
b) there is an inventor who is not named as an applicant, or  
c) any named applicant is a corporate body.  
See note (d))

Patents Form 1/77

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Description	9
Claim(s)	-
Abstract	-
Drawing(s)	2

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Priority documents -

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Statement of inventorship and right to grant of a patent (Patents Form 7/77) -

Request for preliminary examination and search (Patents Form 9/77) -

Request for substantive examination (Patents Form 10/77) -

Any other documents (please specify) -

11.

I/We request the grant of a patent on the basis of this application.

Signature

*Murgitroyd & Co*

Date

13 November 2003

Murgitroyd &amp; Company

12. Name and daytime telephone number of person to contact in the United Kingdom

Mark Earnshaw

02890 320441

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1     Method of Making Pitch Lines

2

3     The present invention relates to a method of making  
4     lines in ground suitable for playing fields and the  
5     like.

6

7     In the island of Ireland, there are approximately  
8     120,000 playing pitches for soccer, gaelic football,  
9     cricket and the like. The lines for such pitches are  
10    generally formed by a wheeled paint buggy, which  
11    introduces a line of paint on the ground through the  
12    travel of the front wheel through a paint reservoir.

13

14    However, heavily used pitches often require newly  
15    painted lines every week during a playing season,  
16    whereas these lines are often 'lost' in the non-  
17    playing season as the surrounding grass encroaches,  
18    and the pitches are not so regularly mowed. Weed or  
19    grass killer can be added to the intended line, but  
20    because grass is on either side of each line, the  
21    grass and weeds still encroach quickly. It will be  
22    appreciated the amount of time taken by groundsmen

1 to keep clearing and repainting pitch lines for  
2 120,000 pitches in Ireland alone.

3

4 It is an object of the present invention to provide  
5 more permanent lines in the ground.

6

7 Thus, according to one aspect of the present  
8 invention, there is provided a method of creating a  
9 marked line in a ground surface comprising the steps  
10 of:

11 forming one or more slits in the ground surface;  
12 inserting a line of material in the or each slit  
13 such that part of the material is visible above the  
14 ground surface.

15

16 The slit in the ground surface could be formed by  
17 any suitable means, one such being a blade,  
18 preferably having a sharpened or tapered edge to  
19 assist entry into and through the ground surface.

20

21 The ground surface can be any surface on which a  
22 slit can easily be formed, one such being earth,  
23 more generally grassed earth.

24

25 In one embodiment of the present invention, the  
26 method comprises forming between two and four slits,  
27 preferably three slits, parallel in the ground, so  
28 as to create a broader form of marked line. Where  
29 the method involves forming multiple lines, the  
30 lines can be any suitable distance apart. Where it  
31 is intended generally to provide a single visible  
32 marked line in the ground surface, the multiple

1 slits are preferably relatively close, such as 20mm,  
2 inter-distant.

3

4 The or each slit created preferably creates little  
5 or no visible disturbance on the ground surface  
6 other than the marked line. Preferably, the ground  
7 surface is rolled after the insertion of the or each  
8 line of material.

9

10 The material may be any suitable material, at least  
11 part of which is visible above the ground surface.  
12 The material may be any suitable colour, white being  
13 the commonest colour for many playing pitches.

14

15 Preferably, at least that part of the material  
16 visible above the ground surface is partially or at  
17 least substantially resistant to sunlight, in  
18 particular UV light. In this regard, the material  
19 may inherently have a high kilo-langley strength, or  
20 be treated so as to have such a high strength.

21

22 In another embodiment of the present invention, the  
23 material is at least partly open or has an open  
24 structure, through which the ground surface, or  
25 anything growing in the ground surface, such as the  
26 roots of grass, etc, can extend so as to help anchor  
27 the material in the slit either immediately and/or  
28 over time.

29

30 According to another embodiment of the present  
31 invention, the material is a polymer material such

1 as polypropylene. Such material is widely  
2 available.

3  
4 The material is preferably inserted in the slit by  
5 travel on the slit-forming means. More preferably,  
6 the material travels on the edge of the slit-forming  
7 means towards and into the surface, and is located  
8 in the slit as the slit is being formed.

9  
10 More preferably, at least a portion of the material  
11 which is not inserted into the ground surface  
12 comprises a number of separate or discrete fibres,  
13 or fibre-like extensions. These together provide  
14 the visual form of the line, but are wholly or  
15 substantially individual like blades of grass. More  
16 preferably, that portion of the material above the  
17 ground surface is not damageable by a lawnmower or  
18 ground trimmer or the like.

19  
20 According to one embodiment of the present  
21 invention, the material comprises a woven plastics  
22 material, having a central woven portion which is  
23 insertable in the ground surface, and extended weft  
24 fibres adapted to partially or substantially  
25 extended above the ground surface.

26  
27 Thus, according to one embodiment of the present  
28 invention, there is provided a method of creating a  
29 marked line in a ground surface comprising the steps  
30 of:



1     locating a slit-forming means having at least one  
2     blade on the ground surface, such that a portion of  
3     the blade enters the ground surface;  
4     locating a fibrous or woven material on each blade;  
5     traversing the slit forming means along the path of  
6     the intended line;  
7     allowing the material to travel with each blade into  
8     the ground;  
9     leaving the material in each slit formed such that  
10    part of the material is visible above the ground  
11    surface.  
12  
13    According to a further embodiment of the present  
14    invention, the marked line formed by the present  
15    invention is 'permanent', i.e. remains to form a  
16    marked line for at least a number of years,  
17    expectantly greater than ten years.  
18  
19    In a second aspect, the present invention extends to  
20    a marked line in the ground surface formed by the  
21    method as hereinbefore described.  
22  
23    According to a third aspect of the present  
24    invention, there is provided a marked line forming  
25    apparatus, which apparatus comprises one or more  
26    rotatable blades, each blade being adapted to form a  
27    slit in the ground surface, and adapted to feed  
28    around its edge a material for partially inserting  
29    into the slit.  
30  
31    Preferably the apparatus includes a roller following  
32    the or each blade, more preferably two or more

1     rollers on which the apparatus traverses along the  
2     ground surface.

3

4     Embodiments of the present invention will now be  
5     described by way of example only, and with reference  
6     to the accompanying drawings in which:

7

8     Figure 1 is a marked line in a grassy earth surface  
9     according to one embodiment of the present  
10    invention;

11    Figures 2 a and b are diagrammatic cross sections of  
12    the ground in Figure 1 from different directions;

13    Figure 3 is a perspective part view of apparatus  
14    according to another embodiment of the present  
15    invention;

16    Figure 4 is a schematic part-cross sectional side  
17    view of part of the apparatus in Figure 3 in use.

18

19    Referring to the drawings, Figure 1 shows a marked  
20    line 2 in a grassy earth-surface 4 as an  
21    illustration of the effect of the present invention.  
22    The marked line could be used as a pitch line for a  
23    soccer or gaelic football pitch.

24

25    Figure 2a shows a cross sectional view through the  
26    ground 4 across the path of the marked line 2,  
27    showing the location of three lines 6 of white  
28    material in the ground surface 4. Figurative grass  
29    8 is shown each side of the line 2, although the  
30    relative heights of the grass 8 and the parts of the  
31    material above the ground surface are for  
32    illustrative purposes only.

1  
2 It is possible that the grass 8 will re-grow around  
3 the visible part of the material. However, material  
4 such as polypropylene is not cuttable by most if not  
5 all types of lawnmowers, especially those lawnmowers  
6 used generally to mow playing surfaces. Thus, it is  
7 not a problem if the grass grows in amongst the  
8 marked white lines 6, as mowing of the playing  
9 surface will reduce it to the same or a lower height  
10 of the visible polypropylene fibres, maintaining the  
11 visibility of the white lines 6.

12  
13 Figure 2b shows a longitudinal cross section of the  
14 marked line 2 of Figure 1, showing the material  
15 having a woven section 10 which is within the ground  
16 surface 4, and the free fibres extending therefrom,  
17 the ends of which 12 are visible above the ground  
18 surface.

19  
20 That part of the material above the ground surface 4  
21 is labelled in Figures 2a and 2b as 20, and that  
22 part which is below the ground surface 4 is labelled  
23 22. The combined parts of the material 20, 22 can  
24 be seen as folded, which folding is arranged to fit  
25 over the edge of a blade as hereinafter described.

26  
27 Figure 3 shows apparatus comprising three blades 30.  
28 The blades are rotatable about separate axes 32,  
29 parallel, and are offset to be approximately 20mm  
30 apart, which distance is adjustable.

31

1 Figure 4 shows schematically the three blades 30,  
2 generally housed within a housing 34. At the  
3 forward and rear ends of the housing 34 are round  
4 surface rollers 36.

5  
6 Each blade 30 forms a slit in the ground surface 4  
7 by traversing the ground surface 4, eg by being  
8 pulled by a tractor through linkage 38. As each  
9 blade 30 rotates about its axis 32, it cuts into the  
10 ground surface 4.

11  
12 Feeding onto each blade 30 (shown only once in  
13 Figure 4), is a folded woven polypropylene material  
14 approximately 20cm wide, having a central woven band  
15 approximately 7-8cm wide, and free weft fibres  
16 extending from each side of the central band. The  
17 fully woven form of this material is common in the  
18 art, and used for forming bales or agricultural  
19 flexible sacks and the like.

20  
21 As the blades 30 rotate, the folded material 40  
22 follows the edge of the blade 30 and is therefore  
23 fed into the ground surface 4 as the blade 30 enters  
24 also. The force of the blade 30 then locates the  
25 base of the material 40 in the slit formed, which  
26 material 40 then remains in the ground surface 4  
27 whilst the edge of the blade 30 exits the ground  
28 surface 4. The free ends 42 of the material 40 are  
29 however now visible whilst being securely retained  
30 in the ground surface 4 as the ground folds back  
31 around the remaining part of the material and holds  
32 it in place.

1

2 Any ground disturbance caused by the slits is rolled  
3 by the rear roller 36.

4

5 In order to ensure straight lines, the apparatus-  
6 pulling means such as the tractor, could be laser  
7 guided by a laser set at the end of the intended  
8 path of the line, whose beam hits a target on or  
9 near the apparatus, which target is noted by the  
10 user.

11

12 The present invention has been found to lay the  
13 complete lines of the football pitch within a day,  
14 which lines then need no further maintenance or  
15 repair. Moreover, the free fibres 20 extending  
16 above the ground surface will not trip or catch any  
17 player, such as by his boots studs. Moreover, the  
18 free fibres 20 cannot be cut by a lawnmower such  
19 that mowing any playing pitch is not a problem.

20

21 The present invention provides a simple but  
22 effective means of providing marked lines, which  
23 lines will remain, and need no further repair or  
24 maintenance for a number of years, while still  
25 providing the same visual effect as painted lines.

Fig 3

1/2

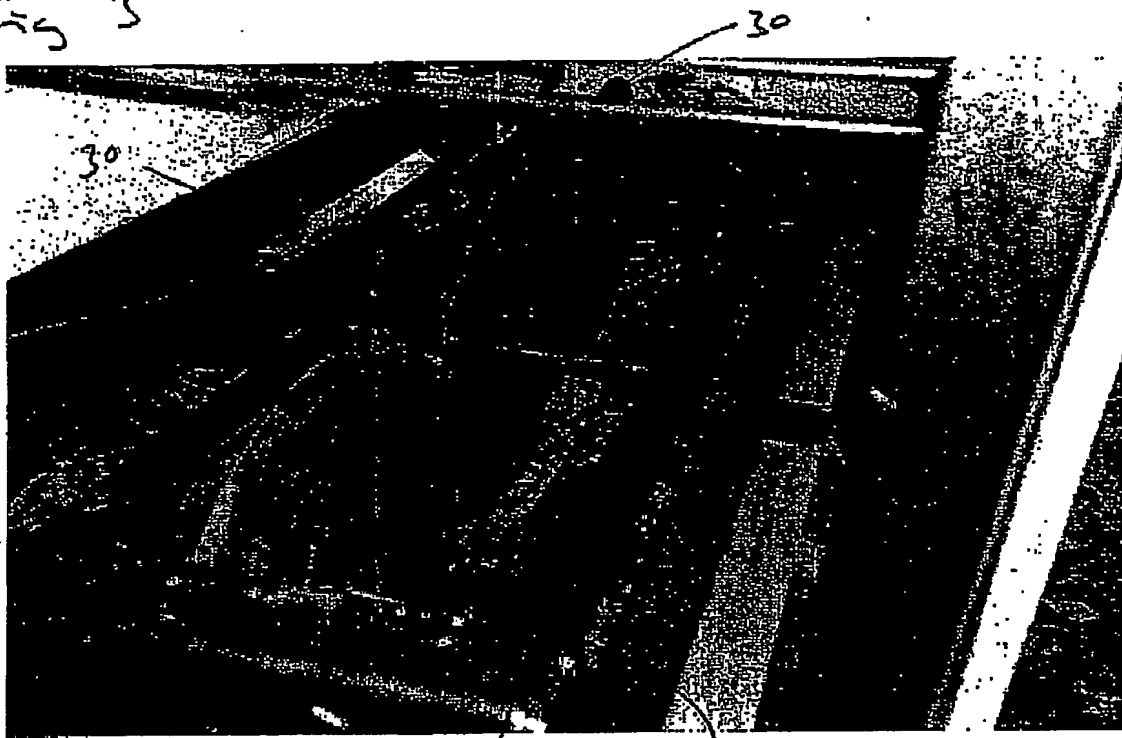
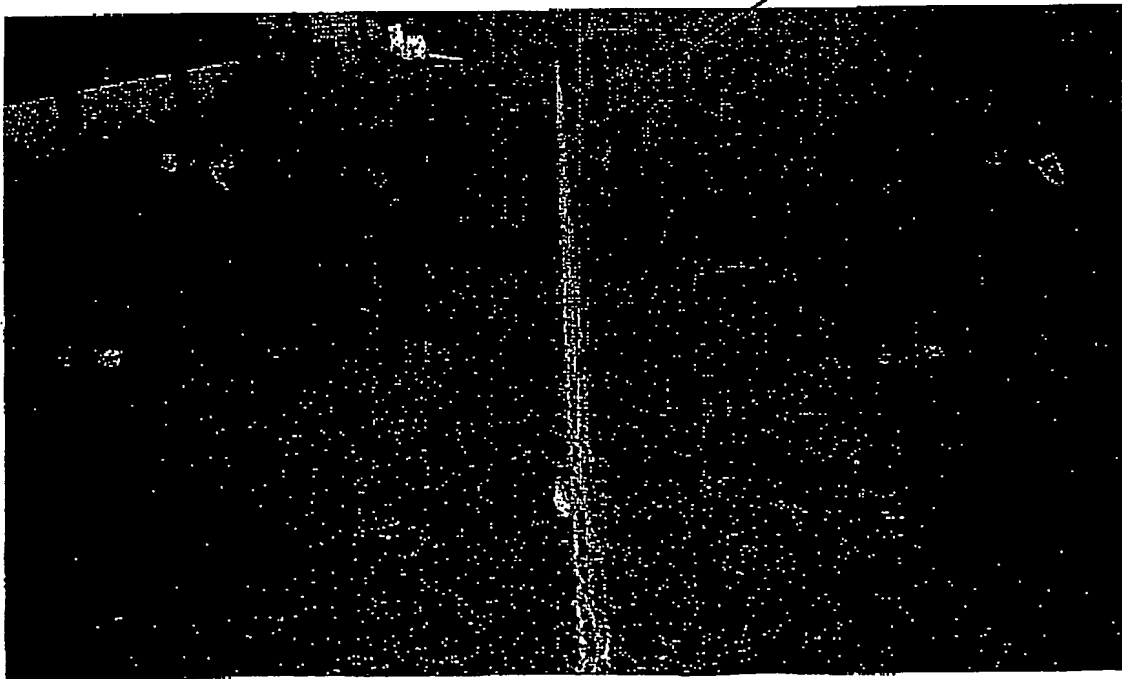
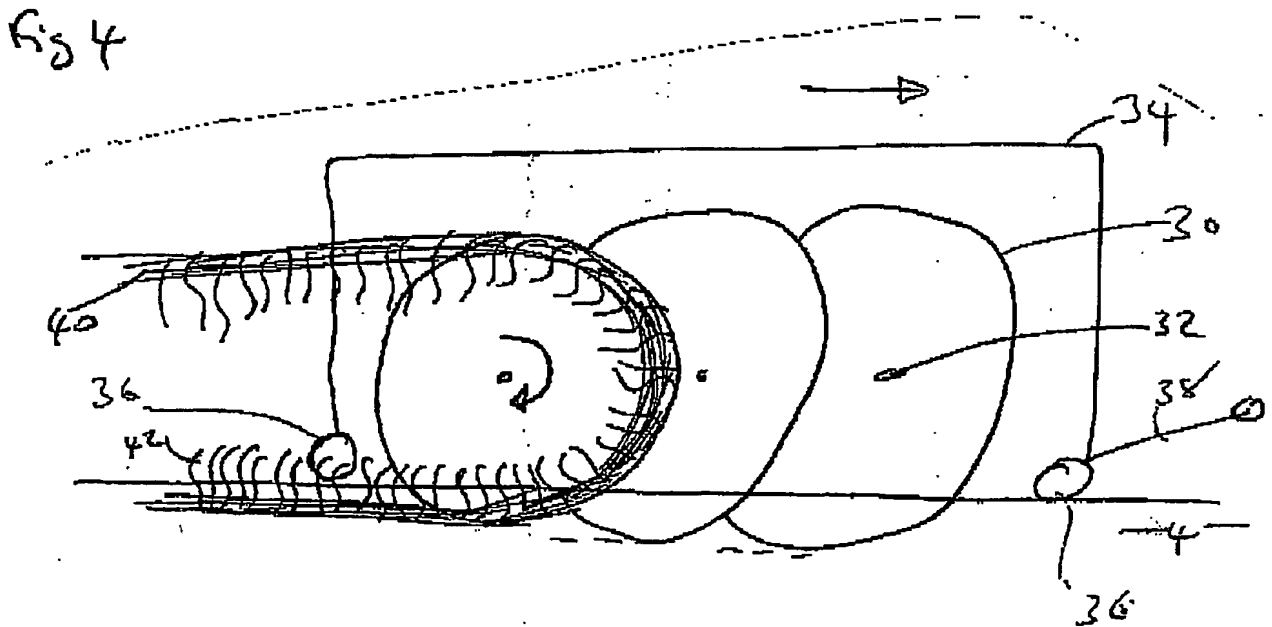
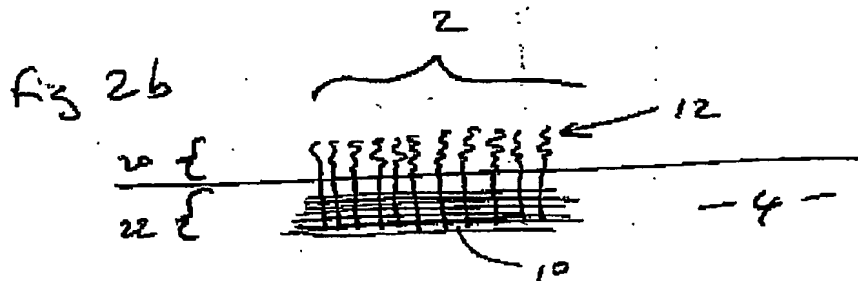
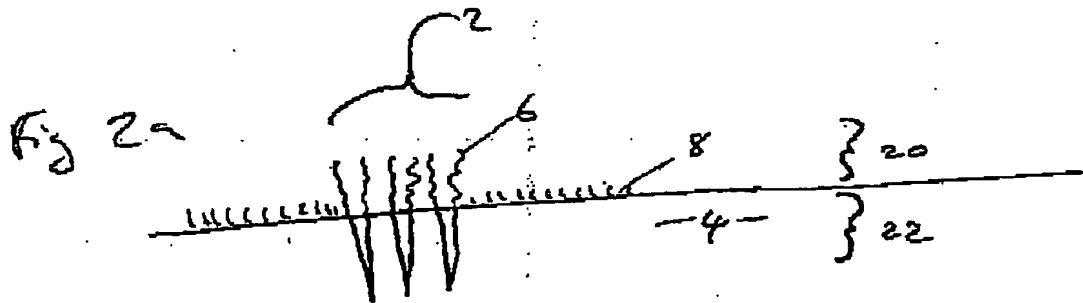


Fig 1



2/2



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